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IS 3347-2-1 (1979): Dimensions for Porcelain Transformer Bushings for Use in Lightly Polluted Atmospheres - Part II : 3.6 kV Bushings, Section 1: Porcelain Parts [ETD 6: Electrical Insulators and Accessories]



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IS : 3347 (Part II/Sec 1) - 1979
(Reaffirmed 1999)

Indian Standard
DIMENSIONS FOR
PORCELAIN TRANSFORMER BUSHINGS
FOR USE IN NORMAL AND LIGHTLY
POLLUTED ATMOSPHERES

PART II 3.6 kV BUSHINGS

Section 1 Porcelain Parts

(First Revision)

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BUREAU OF INDIAN STANDARDS
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Indian Standard
DIMENSIONS FOR
PORCELAIN TRANSFORMER BUSHINGS
FOR USE IN NORMAL AND LIGHTLY
POLLUTED ATMOSPHERES

PART II 3-6 kV BUSHINGS

Section I Porcelain Parts

(First Revision)

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Indian Standard

**DIMENSIONS FOR
PORCELAIN TRANSFORMER BUSHINGS
FOR USE IN NORMAL AND LIGHTLY
POLLUTED ATMOSPHERES**

PART II 3.6 kV BUSHINGS

Section 1 Porcelain Parts

(First Revision)

0. FOREWORD

0.1 This Indian Standard (Part II/Sec 1) (First Revision) was adopted by the Indian Standards Institution on 27 July 1979, after the draft finalized by the Electrical Insulators and Accessories Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This standard was first issued in 1965. In this revision, in place of four slots arranged cross-wise provided formerly in the case of lower insulator for 250 A, and 630 A, provision has been made for two diametrically opposite slots in the upper portion and two displaced 90° in the lower portion. In the case of porcelains for 1 000, 2 000 and 3 150 A, these slots are dispensed with in lower insulators on mechanical grounds. Ventilation of these bushings takes place through the slotted sealing rings (*see* Section 2).

0.3 This standard (Part II) covers the dimensions of porcelain transformer bushings for use in normal and lightly polluted atmospheres of 3.6 kV with the object of ensuring their interchangeability. To avoid multiplicity of sizes, the dimensions given are only for those ratings (voltage and current) which are being used appreciably. This part is being prepared in two sections. This section (Section 1) covers the porcelain parts of the bushings. Section 2 covers the dimensions of the metal parts of the bushings to go with the porcelain parts of Section 1.

0.4 The dimensions given in this standard (Part II/Sec 1) have been arrived at after a full consideration of the available sizes and an examination of the relevant merits of different types of bushings. Detailed dimensions have been given with a view to achieve maximum economy

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in the manufacture of bushings. The porcelain parts covered by this standard shall also conform to IS : 5621-1979* unless otherwise stated in this standard.

0.5 The bushings are rated in terms of the highest system voltage (*see* IS : 2099-1973†). The dimensions of bushings for other voltages are covered by the following parts of this standard:

Part I Up to and including 1 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts

Part III 12 and 17.5 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts

Part IV 24 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts

Part V 36 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts

Part VI 72.5 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts (*under preparation*)

Part VII 123 kV bushings

Section 1 Porcelain parts

Section 2 Metal parts (*under preparation*)

0.6 For 3.6 kV, 2-piece porcelain insulators have been recommended.

0.7 The dimensions covered in this standard essentially apply to bushings used outdoors with inner ends immersed in oil and suitable for normal and lightly polluted atmospheres.

0.8 The performance requirements of the bushings covered in this part of standard are given in IS : 2099-1973†.

*Specification for hollow insulators for use in electrical equipment (*first revision*).

†Specification for bushings for alternating voltages above 1 000 volts (*first revision*).

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0.9 In the preparation of this standard, assistance has been derived from DIN 42539 (1968) 'Transformers bushings for indoor and outdoor types, service voltage rating 3 kV, 250 to 3 150 A' issued by Deutscher Normenausschuss.

0.10 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard (Part II/Sec 1) lays down the dimensions of porcelain parts of bushings for use in normal and lightly polluted atmospheres of 3.6 kV used with transformers.

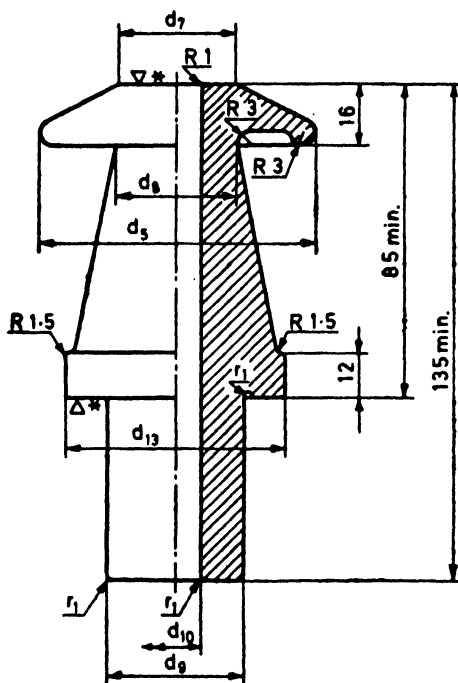
2. PORCELAIN PARTS

2.1 The dimensions of the porcelain parts for the different ratings (kV/A) of bushings are given in Fig. 1.

2.2 Unless otherwise mentioned, the tolerance on the porcelain parts shall be $\pm (0.03 d + 0.3)$ mm, d being the dimension in millimetres.

*Rules for rounding off numerical values (*revised*).

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Rating, kV/A	d_6	d_7	d_8	d_9	d_{10}	d_{11}	r_1
3·6/250	75	32	34	$37 \begin{smallmatrix} +0 \\ -3 \end{smallmatrix}$	$14 \begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	60	1
3·6/630	90	47	49	$43 \begin{smallmatrix} +0 \\ -3 \end{smallmatrix}$	$22 \begin{smallmatrix} +2 \\ -0 \end{smallmatrix}$	70	1
3·6/1 000	110	65	67	$53 \begin{smallmatrix} +0 \\ -4 \end{smallmatrix}$	$32 \begin{smallmatrix} +3 \\ -0 \end{smallmatrix}$	90	1·5
3·6/2 000	125	80	82	$66 \begin{smallmatrix} +0 \\ -5 \end{smallmatrix}$	$44 \begin{smallmatrix} +3 \\ -0 \end{smallmatrix}$	105	1·5
3·6/3 150	145	100	100	$86 \begin{smallmatrix} +0 \\ -6 \end{smallmatrix}$	$50 \begin{smallmatrix} +4 \\ -0 \end{smallmatrix}$	125	1·5

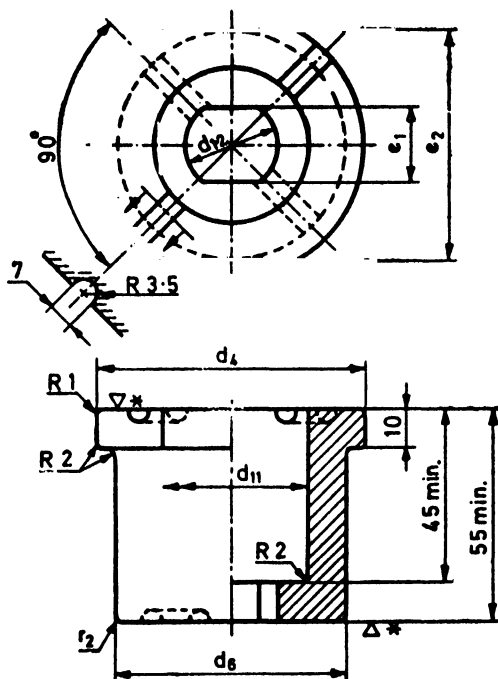
***Unglazed.**

△Surfaces ground parallel to each other and perpendicular to axis.

All dimensions in millimetres.

1A Upper Insulator

(Continued)



Rating, kV/A	d_4	d_6 and e_2	d_{11}	d_{11}	e_1	r_2
3.6/250	70	60	40^{+3}_{-0}	26^{+2}_{-0}	20^{+2}_{-0}	2
3.6/630	85	70	46^{+3}_{-0}	41^{+3}_{-0}	28^{+2}_{-0}	3
3.6/1 000	110	90	57^{+4}_{-0}	46^{+3}_{-0}	37^{+3}_{-0}	4
3.6/2 000	125	105	70^{+5}_{-0}	64^{+4}_{-0}	51^{+4}_{-0}	4
3.6/3 150	150	125	90^{+6}_{-0}	80^{+5}_{-0}	61^{+4}_{-0}	4

NOTE — This figure has been shown with slots. These slots are required for 250 and 630 A.

*Unglazed.

△Surfaces ground parallel to each other and perpendicular to axis.

All dimensions in millimetres.

IB Lower Insulator

FIG. 1 PORCELAIN INSULATORS FOR 3.6/250, 630, 1000, 2000 AND 3 150 BUSHINGS

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(Continued from page 2)

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AMENDMENT NO. 1 AUGUST 1989
TO
IS : 3347 (Part 2/Sec 1) - 1979 DIMENSIONS FOR
PORCELAIN TRANSFORMER BUSHINGS
FOR USE IN NORMAL AND LIGHTLY POLLUTED
ATMOSPHERES

PART 2 3·6 kV BUSHINGS

Section 1 Porcelain Parts

(First Revision)

(First cover, pages 1 and 3, title) — Substitute the following for the existing title:

‘ Indian Standard

DIMENSIONS FOR
PORCELAIN TRANSFORMER BUSHINGS
FOR USE IN LIGHTLY POLLUTED
ATMOSPHERES

PART 2 3·6 kV BUSHINGS

Section 1 Porcelain Parts

(First Revision)

(Page 3, clause 0.3, line 2) — Delete the words ‘ normal and ’.

(Page 5, clause 1.1, line 2) — Delete the words ‘ normal and ’.

(Page 6, first two entries of last col) — Substitute ‘ 1·0 ’ for ‘ 1 ’.

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